Software Unit Test Process Assessment Checklist

Date(s) of Assessment: _____ Project: _____

Assessor(s): _____ Process Assessed: _____

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		Y, N, NA	F, O	Comments
PROCESS ASSESSMENT PREPARATION				
1	Do standards and guidelines exist that clearly define the process?			
2	Has the project submitted any request for deviations or waivers to current standards or guidelines?			
4	Have entrance and exit criteria been established for the process assessment?			
5	Are processes documented and under configuration control?			
6	Was documentation required for the implementation of this process made available to the participants with ample time to review and prepare?			
7	Is there evidence that all stakeholders/participants were involved in the implementation of the process?			
8	Have all parties involved in the implementation of the assessed process received training on the process?			
9	Were there any constraints/limitations associated with the implementation of the process identified?			
UNIT TEST CRITERIA\COMPLIANCE				
10	Were the objectives of the unit test established:			
10a	The strategies to be employed			
10b	The coverage requirements,			
10c	Reporting and analysis,			
10d	Close-out of anomalies?			

Y=Yes, N=No, NA=Not Applicable, F=Finding, O=Observation

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11	Has the unit test been designed to be a test that executes all of the code in the unit? *Tip: Is there evidence that the unit test executed every statement in the unit, including all branches of conditional statements?*			
12	Does the unit test satisfy the requirement for full path coverage and boundary value testing?			
13	Is there sufficient documentation on the unit test to make it clear what is being tested and the general test approach?			
14	Has it been confirmed that anomalies during unit test are software anomalies, and not problems detected for other reasons?			
15	Have comments in the source code been paired with comments in the unit test code to verify that all conditional branches have been tested and paths have been covered?			
16	Was each conditional branch in the unit executed?			
17	Were all operations that might cause erroneous execution (i.e., divide by zero, taking square root of negative number, etc.) proved impossible?			
18	Were all parameters and inputs to subprograms tested with nominal values and with values at the extremes by the algorithm, compiler, and CPU?			
19	Were changes to the module source code required to run unit test?			
20	Is there documentation regarding the test environment the unit was tested on?			
21	Is the unit test repeatable, and will identical results be produced?			
22	Can the unit test be run automatically without user interaction?			

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23	Have the data files used by the unit test been treated as source code for the purpose of Configuration Management?			
24	Do distinct elements of input vectors and matrices have distinct values for the purpose of catching indexing errors?			
25	Do inputs have distinct values? (*If input's order to an operation matter, the input's should have distinct values to catch order errors.)*			
POST ASSESSMENT ACTIVITIES				
26	Are unit tests and test results stored in the software development folders or other artifact files?			
27	At the conclusion of the assessment, is an understanding reached between development, test, system engineering, QA, & CM on the validity and degree of completeness of the Unit Test process?			
28	Did all designated parties concur in the acceptability of the Unit Test process (i.e., was there a legitimate reason to deviate from the process)?			
29	Have all artifacts been placed under formal configuration control (e.g., unit test results, unit test logs)?			
30	Were Lessons Learned addressed and captured?			
REFERENCE ITEMS/DOCUMENTS				
FSW Unit Test Standard, Flight Software Branch-Code 582, Version 1.03 – 09-25-03, 582-2000-002				
National Institute of Standards and Technology (NIST) Special Publication 500-223, A Framework for the Development and Assurance of High Integrity Software, dtd12/94				
Mil-Std-498 DID				
***NPR 7150.2,* NASA Software Engineering Requirements (SWE-062)**				

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COMMENTS PAGE _____ of _____

#	Comments from assessment

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